What is claimed is :

1. A communication network comprising :

a host network ;

a plurality of base stations ;

at least a mobile host capable of establishing links to said base stations ; and

a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network, and said routers including at least a page-area managing router for managing at least a page area for recording said mobile host,

wherein said page-area managing router limits, within a predetermined number, the number of transfer-acceptable packets in packets received in a predetermined time period, so that said page-area managing router transfers only said transfer-acceptable packets to sub-ordinate routers managed by said page-area managing router, and said page-area managing router does not transfer exceeding transfer-requested packets received additionally to said transfer-acceptable packets in said predetermined time period.

2. The communication network as claimed in claim 1, wherein said page-area managing router discards said exceeding transfer-requested packets.

3. The communication network as claimed in claim 1, wherein said page-area managing router is capable of optionally setting said predetermined number for said transfer-acceptable packets.

4. The communication network as claimed in claim 3, wherein said predetermined number is a natural number.

5. The communication network as claimed in claim 1, wherein said page-area managing router is capable of optionally setting said predetermined time period.

6. The communication network as claimed in claim 1, wherein said page-area managing router transmits, through said host network to a caller, a second packet-transmission suppression request which requests said caller to widen a time interval of discontinuous transmission of said packets.

7. The communication network as claimed in claim 1, wherein said page-area managing router transmits, through said host network to a caller, a second packet-transmission suppression request which requests said caller to stop transmission of said packet until said predetermined time period has passed, and re-start said packet transmission thereafter.

8. A method of controlling a communication network comprising :

a host network ; a plurality of base stations ; at least a mobile host capable of establishing links to said base stations ; and a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network, and said routers including at least a page-area managing router for managing at least a page area for recording said mobile host,

wherein said page-area managing router limits, within a predetermined number, the number of transfer-acceptable packets in packets received in a predetermined time period, so that said page-area managing router transfers only said transfer-acceptable packets to sub-ordinate routers managed by said page-area managing router, and said page-area managing router does not transfer exceeding transfer-requested packets received additionally to said transfer-acceptable packets in said predetermined time period.

9. The method as claimed in claim 8, wherein said page-area managing router discards said exceeding transfer-requested packets.

10. The method as claimed in claim 8, wherein said page-area managing router is capable of optionally setting said predetermined number for said transfer-acceptable packets.

11. The method as claimed in claim 10, wherein said predetermined number is a natural number.

12. The method as claimed in claim 8, wherein said page-area managing router is capable of optionally setting said predetermined time period.

13. The method as claimed in claim 8, wherein said page-area managing router transmits, through said host network to a caller, a second packet-transmission suppression request which requests said caller to widen a time interval of discontinuous transmission of said packets.

14. The method as claimed in claim 8, wherein said page-area managing router transmits, through said host network to a caller, a second packet-transmission suppression request which requests said caller to stop transmission of said packet until said predetermined time period has passed, and re-start said packet transmission thereafter.

15. A page-area managing router included a hierarchy-network of plural routers providing multiple-point routings between a host network and plural base stations capable of links to at least a mobile host in a communication network, and said page-area managing router managing at least a page area for recording said mobile host,

wherein said page-area managing router limits, within a predetermined number, the number of transfer-acceptable packets in packets received in a predetermined time period, so that said page-area

managing router transfers only said transfer-acceptable packets to sub-ordinate routers managed by said page-area managing router, and said page-area managing router does not transfer exceeding transfer-requested packets received additionally to said transfer-acceptable packets in said predetermined time period.

16. The page-area managing router as claimed in claim 15, wherein said page-area managing router discards said exceeding transfer-requested packets.

17. The page-area managing router as claimed in claim 15, wherein said page-area managing router is capable of optionally setting said predetermined number for said transfer-acceptable packets.

18. The page-area managing router as claimed in claim 17, wherein said predetermined number is a natural number.

19. The page-area managing router as claimed in claim 15, wherein said page-area managing router is capable of optionally setting said predetermined time period.

20. The page-area managing router as claimed in claim 15, wherein said page-area managing router transmits, through said host network to a caller, a second packet-transmission suppression request which requests

said caller to widen a time interval of discontinuous transmission of said packets.

21. The page-area managing router as claimed in claim 15, wherein said page-area managing router transmits, through said host network to a caller, a second packet-transmission suppression request which requests said caller to stop transmission of said packet until said predetermined time period has passed, and re-start said packet transmission thereafter.

22. A communication network comprising :

a host network ;

a plurality of base stations ;

at least a mobile host capable of establishing links to said base stations ; and

a hierarchy-network of plural router-sets providing multiple-point routings between said base stations and said host network,

wherein each of said router-sets further includes plural associated routers which provide the same communication route and which have the same routing informations, and normally selected one of said associated routers in each router set is operational to provide said communication route, and if said normally selected one of said associated routers becomes trouble or inoperational, then other of said associated routers is alternatively selected to be operational to provide said communication route, thereby allowing continuous communication between said at least

mobile host and said host network.

23. The communication network as claimed in claim 22, wherein said associated routers in each router set comprise a primary router and a secondary router, and said primary router is normally selected and operational to provide said communication route, and if said primary router becomes trouble or inoperational, then said secondary router is alternatively selected and operational to provide said communication route.

24. The communication network as claimed in claim 22, wherein selection to one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

25. The communication network as claimed in claim 24, wherein originally selected one of said associated routers in each router set sends said selected higher level router a message indicating that said originally selected one of said associated routers is operational, and if said selected higher level router has not received said message from said originally selected one of said associated routers in a predetermined time period, then said selected higher level router judges that said originally selected one of said associated routers has become inoperational, and said selected higher level router selects other of said associated routers to provide the same communication route alternative to said originally selected one of said associated routers.

26. The communication network as claimed in claim 22, wherein all of said associated routers update the same routing information themselves based on a position recording message of said at least mobile host which has been transferred through a selected lower level router which is managed by selected one of said associated routers, and said selected one of said associated routers further transfers said position recording message to all of higher level associated routers which are capable of managing said associated routers.

27. A method of controlling a communication network comprising : a host network ; a plurality of base stations ; at least a mobile host capable of establishing links to said base stations ; and a hierarchy-network of plural router-sets providing multiple-point routings between said base stations and said host network, each of said router-sets further including plural associated routers which provide the same communication route and which have the same routing informations,

wherein normally selected one of said associated routers in each router set is operational to provide said communication route, and if said normally selected one of said associated routers becomes trouble or inoperational, then other of said associated routers is alternatively selected to be operational to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network.

28. The method as claimed in claim 27, wherein said associated routers in each router set comprise a primary router and a secondary router, and said primary router is normally selected and operational to provide said communication route, and if said primary router becomes trouble or inoperational, then said secondary router is alternatively selected and operational to provide said communication route.

29. The method as claimed in claim 27, wherein selection to one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

30. The method as claimed in claim 29, wherein originally selected one of said associated routers in each router set sends said selected higher level router a message indicating that said originally selected one of said associated routers is operational, and if said selected higher level router has not received said message from said originally selected one of said associated routers in a predetermined time period, then said selected higher level router judges that said originally selected one of said associated routers has become inoperational, and said selected higher level router selects other of said associated routers to provide the same communication route alternative to said originally selected one of said associated routers.

31. The communication network as claimed in claim 27, wherein all

of said associated routers update the same routing information themselves based on a position recording message of said at least mobile host which has been transferred through a selected lower level router which is managed by selected one of said associated routers, and said selected one of said associated routers further transfers said position recording message to all of higher level associated routers which are capable of managing said associated routers.

32. A hierarchy-router-network of plural router-sets providing multiple-point routings between a plurality of base stations establishing links to at least a mobile host and a host network,

wherein each of said router-sets further includes plural associated routers which provide the same communication route and which have the same routing informations, and normally selected one of said associated routers in each router set is operational to provide said communication route, and if said normally selected one of said associated routers becomes trouble or inoperational, then other of said associated routers is alternatively selected to be operational to provide said communication route, thereby allowing continuous communication between said at least mobile host and said host network.

33. The hierarchy-router-network as claimed in claim 32, wherein said associated routers in each router set comprise a primary router and a secondary router, and said primary router is normally selected and

operational to provide said communication route, and if said primary router becomes trouble or inoperational, then said secondary router is alternatively selected and operational to provide said communication route.

34. The hierarchy-router-network as claimed in claim 32, wherein selection to one of said associated routers in each router set is made by a selected higher level router which manages said associated routers.

35. The hierarchy-router-network as claimed in claim 34, wherein originally selected one of said associated routers in each router set sends said selected higher level router a message indicating that said originally selected one of said associated routers is operational, and if said selected higher level router has not received said message from said originally selected one of said associated routers in a predetermined time period, then said selected higher level router judges that said originally selected one of said associated routers has become inoperational, and said selected higher level router selects other of said associated routers to provide the same communication route alternative to said originally selected one of said associated routers.

36. The hierarchy-router-network as claimed in claim 32, wherein all of said associated routers update the same routing information themselves based on a position recording message of said at least mobile host which has been transferred through a selected lower level router which is

managed by selected one of said associated routers, and said selected one of said associated routers further transfers said position recording message to all of higher level associated routers which are capable of managing said associated routers.

37. A communication network comprising :

a host network ;

a plurality of base stations ;

at least a mobile host capable of establishing links to said base stations ; and

a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein at least one of said routers becomes selectively performing as a multicast router for transferring a packet to not only a first base station which has currently been linked to said mobile host but also at least a second base station adjacent to said first base station, and said second base station has currently been unlinked to said mobile host.

38. The communication network as claimed in claim 37, wherein said router selected as said multicast router is positioned at a branch point of both a currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

39. The communication network as claimed in claim 38, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

40. The communication network as claimed in claim 39, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

41. The communication network as claimed in claim 37, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

42. The communication network as claimed in claim 41, wherein said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher

level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

43. The communication network as claimed in claim 37, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

44. The communication network as claimed in claim 37, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

45. The communication network as claimed in claim 44, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

46. The communication network as claimed in claim 45, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to

said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

47. The communication network as claimed in claim 44, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

48. The communication network as claimed in claim 44, wherein said second base station queues said packet.

49. The communication network as claimed in claim 48, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

50. The communication network as claimed in claim 37, wherein said multicast router is a bicast router.

51. A communication network comprising :

a host network ;

a plurality of base stations ;

at least a mobile host capable of establishing links to said base stations ; and

a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein said hierarchy-network of plural routers establishes not only a currently designated communication route between said host network and a first base station which has currently been linked to said mobile host but also a currently undesignated adjacent communication route between said host network and a second base station adjacent to said first base station, and said second base station has currently been unlinked to said mobile host, and

wherein said hierarchy-network of plural routers transfers a packet not only through said currently designated communication route to said first base station but also through said currently undesignated adjacent communication route to said second base station.

52. The communication network as claimed in claim 51, wherein a

router positioned at a branch point of both said currently designated communication route and said currently undesignated adjacent communication route is selected to perform as a multicast router.

53. The communication network as claimed in claim 52, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

54. The communication network as claimed in claim 53, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

55. The communication network as claimed in claim 52, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

56. The communication network as claimed in claim 55, wherein

said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

57. The communication network as claimed in claim 51, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

58. The communication network as claimed in claim 52, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

59. The communication network as claimed in claim 58, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

60. The communication network as claimed in claim 59, wherein after said mobile host entered into said adjacent radio area and established

a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

61. The communication network as claimed in claim 58, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

62. The communication network as claimed in claim 58, wherein said second base station queues said packet.

63. The communication network as claimed in claim 62, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet

from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

64. The communication network as claimed in claim 52, wherein said multicast router is a bicast router.

65. A method of controlling a communication network comprising : a host network ; a plurality of base stations ; at least a mobile host capable of establishing links to said base stations ; and a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein at least one of said routers becomes selectively performing as a multicast router for transferring a packet to not only a first base station which has currently been linked to said mobile host but also at least a second base station adjacent to said first base station, and said second base station has currently been unlinked to said mobile host.

66. The method as claimed in claim 65, wherein said router selected as said multicast router is positioned at a branch point of both a currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

67. The method as claimed in claim 66, wherein said selection of said multicast router is made by a retrieval to said branch point based on a position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

68. The method as claimed in claim 67, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

69. The method as claimed in claim 65, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

70. The method as claimed in claim 69, wherein said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said

host network and said second base station.

71. The method as claimed in claim 65, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

72. The method as claimed in claim 65, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

73. The method as claimed in claim 72, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

74. The method as claimed in claim 73, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said

second base station.

75. The method as claimed in claim 72, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

76. The method as claimed in claim 72, wherein said second base station queues said packet.

77. The method as claimed in claim 76, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

78. The method as claimed in claim 65, wherein said multicast router is a bicast router.

79. A method of controlling a communication network comprising : a host network ; a plurality of base stations ; at least a mobile host capable of establishing links to said base stations ; and a hierarchy-network of plural routers providing multiple-point routings between said base stations and said host network,

wherein said hierarchy-network of plural routers establishes not only a currently designated communication route between said host network and a first base station which has currently been linked to said mobile host but also a currently undesignated adjacent communication route between said host network and a second base station adjacent to said first base station, and said second base station has currently been unlinked to said mobile host, and

wherein said hierarchy-network of plural routers transfers a packet not only through said currently designated communication route to said first base station but also through said currently undesignated adjacent communication route to said second base station.

80. The method as claimed in claim 79, wherein a router positioned at a branch point of both said currently designated communication route and said currently undesignated adjacent communication route is selected to perform as a multicast router.

81. The method as claimed in claim 80, wherein said selection of said multicast router is made by a retrieval to said branch point based on a

position recording message from said mobile host and a last-updated routing information stored on a routing table of each of said routers, wherein said routing information is updated based on said position recording message from said mobile host.

82. The method as claimed in claim 81, wherein said retrieval to said branch point is made, every when said mobile host moves to an adjacent radio area to said last-existed radio area, based on a new position recording message from said mobile host and a newly-updated routing information.

83. The method as claimed in claim 80, wherein said router selected as said multicast router has a lowest level in said hierarchy-network of plural routers and is positioned on a currently designated communication route between said host network and said first base station.

84. The method as claimed in claim 83, wherein said multicast router transfers said packet to said first base station and also to said second base station through a higher level router which is higher in level of said hierarchy-network of plural routers, provided that said higher level router is positioned at a branch point of both said currently designated communication route between said host network and said first base station and a currently undesignated adjacent communication route between said host network and said second base station.

85. The method as claimed in claim 79, wherein said second base station is selected to be a base station which transmits a most intensive radio wave to said mobile host except for said first base station.

86. The method as claimed in claim 80, wherein said multicast router adds said packet with a label value which indicates a sequence in transmission of said packet before transferring said packet with said label value.

87. The method as claimed in claim 86, wherein lowest level routers at the lowest level of said hierarchy-network of plural routers are capable of queuing said packet.

88. The method as claimed in claim 87, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station transfers said label value to said lowest level router, and said lowest level router selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said lowest level router sends said selected at least one packet of said packets to said mobile host through said second base station.

89. The method as claimed in claim 86, wherein said mobile host compares a just-received label value of said packet just received from said second base station to said last-received label value, and if said just-received label value is identical with said last-received label value, then said mobile host discards said packet just received from said second base station.

90. The method as claimed in claim 86, wherein said second base station queues said packet.

91. The method as claimed in claim 90, wherein after said mobile host entered into said adjacent radio area and established a new link to said second base station, then said mobile host sends said second base station said label value which had been last-received from said first base station, and said second base station selects at least one packet from queuing packets by comparing respective label values of said queuing packets with reference to said last label value, and said second base station sends said selected at least one packet to said mobile host.

92. The method as claimed in claim 80, wherein said multicast router is a bicast router.